

Aquascientific™

Affordable Marine Energy

- Trials at Exmouth with Exmouth Mussels Pontoon

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Myles Blood-Smyth – Exmouth Mussels

Exe Estuary Forum 28th January 2010

3rd Generation Tidal Turbines

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In Partnership with

UNIVERSITY OF
EXETER

BERR Department for Business
Enterprise & Regulatory Reform

**THE ROYAL
SOCIETY**

**FRAZER-NASH
CONSULTANCY**

Thanks to

**COURVOISIER
THE FUTURE 500**

greenbang

TIGERX.STUDIO

CLEAN slate

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Business Background

- Aquascientific is fully owned by four directors
- Started 2007 – from identification of opportunities in renewables market – tidal energy
- Located in Exeter UK close to Severn and Exe estuaries
- Affiliated with Exeter University – Engineering Fluid Dynamics
- UK government grant £250k, BERR
- Royal Society grant £40k - prototype
- £7M euro academic consortium technology grant
- Core technology IP : UK & European Patents applied for

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Relative Size and Operating Depths

Designed for shallow waters - Estuaries

The diagram shows three cross-sections of tidal turbines in a water column. The water surface is green, and the seabed is yellow. The first turbine, labeled 'Aquascientific', is the shallowest, with a height of 10 meters. The second, 'Pulse Tidal', is taller at 20 meters. The third, 'MCT', is the tallest at 30 meters. Each turbine has a vertical shaft with a nacelle and blades. The Aquascientific turbine has a unique blade configuration. The MCT turbine has a large red funnel-shaped structure at the top.

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Products – in development:

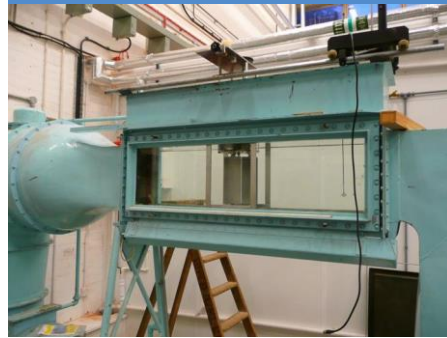
Energy extraction from novel wind and water turbines

- i) Tidal energy extraction
 - Estuaries, rivers, off-shore, e.g. river Exe, Severn,
- ii) Wind energy extraction
 - Inland wind farms, off-shore wind farms, domestic..

Technology area is 'high profile' now – grants available alternative energy sources in high demand.

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Fluid Flow tank – University Exeter . Circulating flow ~ 1 m/s



Turbine fixed to framework
 Rotation speeds measured with digital counter.
 Reversible flow.
 Torque measurements using dynamometer.

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Blade phase gear housing

blades

Power transmission



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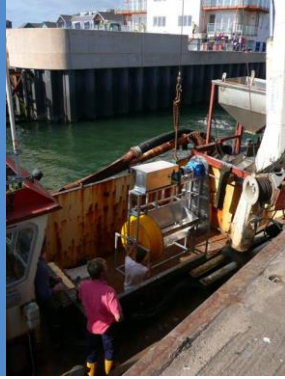
Exe Turbine being prepared for launch – Summer 2009



On way to Exmouth

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... loading at Exmouth Docks



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... with thanks to Myles and team

Exmouth Muscles



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Next generation - 0.5 to 1 MW

- blade span 13 meters



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0.5 MW In the Severn estuary



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Thank you